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MEASUREMENT OF PHOTOGRAPHIC PLATES AT THE STUDENTS'
OBSERVATORY.

Something less than a year ago an instrument for the accurate measurement of photographic plates was received from the makers, Repsold Sons, of Hamburg, Germany. It is of a type which is generally conceded to give the highest accuracy possible in work of this character at something of a sacrifice in the way of speed of manipulation. Much time has been spent investigating the various adjustments of the instrument, the straightness of the bars, scale errors, errors of micrometer-screws, etc., which investigations are a necessary preliminary to the attainment of results of a degree of accuracy which the instrument is capable of giving. In the mean time, over seventy-five plates have been made with two portrait-lenses temporarily attached to the new mounting described by Dr. GILLIHAN in *Publications of the Astronomical Society of the Pacific* (Vol. XVI, p. 89). Most of these were made with a view to determining the position of some of the Watson asteroids, the orbits of which are now under investigation at this observatory. Measurements have already been made on some of these plates, and others will be measured in time to utilize the results in the final correction of the elements of the asteroids.

BERKELEY ASTRONOMICAL DEPARTMENT. BURT L. NEWKIRK.

TABLES FOR THE REDUCTION OF PHOTOGRAPHIC PLATES MADE
WITH LENSES OF WIDE ANGLE.

In connection with the work of the measurement and reduction of the photographic plates made with two portrait-lenses at the Students' Observatory, it has seemed advisable to construct certain numerical tables to simplify the reduction. Three tables, with the help of which the transformation from standard rectangular coordinates to $\alpha - \alpha_0$ and $\delta - \delta_0$ and the converse transformation are to be effected, are at present in course of construction. The tables are to be of such an extent as to be applicable to all stars on a plate covering 10° of Declination and 20° of Right Ascension, and will give results accurate to about $0''.01$ for stars within 1° of the center, and to about $0''.1$ for stars farther from the center. These tables can of course be used in reducing measures made on a plate taken with any photographic telescope.

Another series of tables is to be constructed to facilitate the introduction of corrections for refraction and other corrections which are troublesome in reducing measures made on plates covering large areas of the sky.

The formulæ taken as the basis of these tables are those given by Professor TURNER, but the refraction-table will give all of the differential refraction so that the four-constant solution for the plate constants which is recommended by Professor JACOBY may be employed if desired.

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NOTE ON A CORRECTION TO THE SECOND EDITION OF
SCHÖNFELD AND KREUGER'S "ATLAS DES NÖRDLICHEN GESTIRNTEN HIMMELS."

Upon comparing two photographic plates taken at the Students' Observatory the night of 1905, March 7, with this map, a star of about 8.5 magnitude contained upon the map in $\alpha = 11^h 14^m.1$ and $\delta = +11^\circ 25'$ was found missing on the plates. Reference was then made to the Durchmusterung positions, and no star was found having these coordinates, showing the Atlas position to be an error.

RUSSELL TRACY CRAWFORD.

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THE VARIABLE RADIAL VELOCITY OF *SIRIUS*, AND THE INCLINATION OF ITS ORBIT-PLANE.

The determination of a double-star orbit from micrometer observations of the primary star and its companion leaves an ambiguity as to the inclination of the orbit-plane to the line of sight. There are two positions of the orbit-plane which satisfy the observations equally well. At any given instant the companion may lie beyond the primary or at an equal distance this side of the primary. The orbital motion of the companion may be carrying it either further from the observer or nearer to him. The observations do not permit us to decide which of the two positions is the correct one.

If the two stars are also observable accurately by means of a spectrograph for motion in the line of sight, a comparison of their speeds toward or from the observer will remove the ambi-